IN THE CLAIMS

Please replace all previous listings, and versions, of the claims with the following claims, where added text is indicated by underlining and deleted text is indicated by strikethrough:

1. (Original) A compound, comprising a non-protein-binding moiety (NPBM) and at least one protein-binding group (PBG).

2. (Original) The compound of claim 1, wherein the NPBM is a polyol, sugar, amino acid, or dendrimer moiety.

3. (Original) The compound of claim 1, wherein the NPBM is a polyol moiety; and said polyol moiety is a sorbitol or mannitol moiety.

4. (Original) The compound of claim 1, wherein the NPBM is a sugar moiety; and said sugar moiety is a glucose, sucrose, or trehalose moiety.

5. (Original) The compound of claim 1, wherein the NPBM is an amino acid moiety; and said amino acid moiety is an arginine betaine, proline, or ectoine moiety.

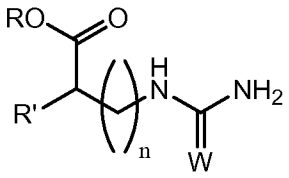
6. (Original) The compound of claim 1, wherein the NPBM is a dendrimer moiety; and said dendrimer moiety is based on benzene, pentaerythritol, $P(CH_2OH)_3$, or TRIS.

7. (Original) The compound of any of claims 1-6, wherein the PBG is a urea, guanidinium ion, detergent, amino acid, denaturant, surfactant, polysorbate, polaxamer, citrate, chaotrope, or acetate group.

8. (Original) The compound of any of claims 1-6, wherein the PBG is a guanidinium ion.

9. (Original) The compound of any of claims 1-6, wherein the PBG is sodium dodecyl sulfate.

10. (Original) A compound represented by formula **I**:



I

wherein:

R is an electron pair, H, alkyl, aryl, heteroaryl, aralkyl, heteroaralkyl, or an alkali metal;

R' is H, alkyl, aryl, heteroaryl, aralkyl, heteroaralkyl, or $(R'')_3N$;

R" is an electron pair, H, alkyl, aryl, heteroaryl, aralkyl, or heteroaralkyl;

W is O, NH_2^+(halogen)$^-$, or S; and

n is 1, 2, or 4-100.

11. (Original) The compound of claim 10, wherein R is an electron pair.

12. (Original) The compound of claim 10, wherein R' is H.

13. (Original) The compound of claim 10, wherein R' is $(R'')_3N$.

14. (Original) The compound of claim 10, wherein R' is H_3N^+.

15. (Original) The compound of claim 10, wherein W is $NH_2^+Cl^-$.

16. (Original) The compound of claim 10, wherein n is 1.

17. (Original) The compound of claim 10, wherein n is 2.

18. (Original) The compound of claim 10, wherein n is 4.

19. (Original) The compound of claim 10, wherein n is 5.

20. (Original) The compound of claim 10, wherein n is 6.

21. (Original) The compound of claim 10, wherein R is an electron pair, R' is H_3N^+, W is $NH_2^+Cl^-$, and n is 1.

22. (Original) The compound of claim 10, wherein R is an electron pair, R' is H_3N^+, W is $NH_2^+Cl^-$, and n is 2.

23. (Original) The compound of claim 10, wherein R is an electron pair, R' is H_3N^+, W is $NH_2^+Cl^-$, and n is 4.

24. (Original) The compound of claim 10, wherein R is an electron pair, R' is H_3N^+, W is $NH_2^+Cl^-$, and n is 5.

25. (Original) The compound of claim 10, wherein R is an electron pair, R' is H_3N^+, W is $NH_2^+Cl^-$, and n is 6.

26. (Original) The compound of claim 10, wherein R is an electron pair, R' is H_3N^+, W is O, and n is 1.

27. (Original) The compound of claim 10, wherein R is an electron pair, R' is H_3N^+, W is O, and n is 2.

28. (Original) The compound of claim 10, wherein R is an electron pair, R' is H_3N^+, W is O, and n is 4.

29. (Original) The compound of claim 10, wherein R is an electron pair, R' is H_3N^+, W is O, and n is 5.

30. (Original) The compound of claim 10, wherein R is an electron pair, R' is H_3N^+, W is O, and n is 6.

31. (Original) The compound of claim 10, wherein R is an electron pair, R' is H, W is $NH_2^+Cl^-$, and n is 1.

32. (Original) The compound of claim 10, wherein R is an electron pair, R' is H, W is $NH_2^+Cl^-$, and n is 2.

33. (Original) The compound of claim 10, wherein R is an electron pair, R' is H^+, W is $NH_2^+Cl^-$, and n is 4.

34. (Original) The compound of claim 10, wherein R is an electron pair, R' is H, W is $NH_2^+Cl^-$, and n is 5.

35. (Original) The compound of claim 10, wherein R is an electron pair, R' is H, W is $NH_2^+Cl^-$, and n is 6.

36. (Original) The compound of claim 10, wherein R is an electron pair, R' is H, W is O, and n is 1.

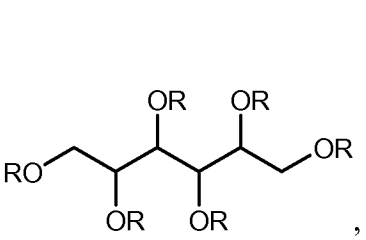
37. (Original) The compound of claim 10, wherein R is an electron pair, R' is H, W is O, and n is 2.

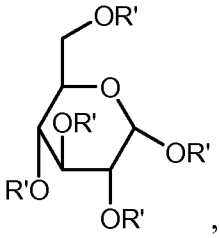
38. (Original) The compound of claim 10, wherein R is an electron pair, R' is H, W is O, and n is 4.

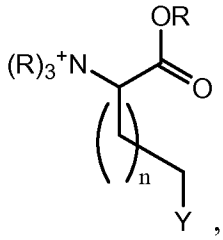
39. (Original) The compound of claim 10, wherein R is an electron pair, R' is H, W is O, and n is 5.

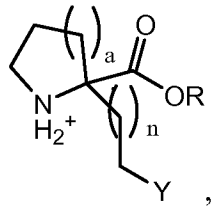
40. (Original) The compound of claim 10, wherein R is an electron pair, R' is H, W is O, and n is 6.

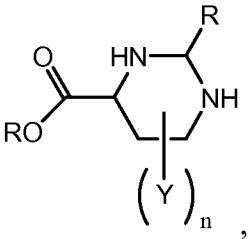
41. (Original) A compound selected from the group consisting of:

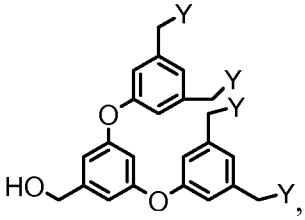


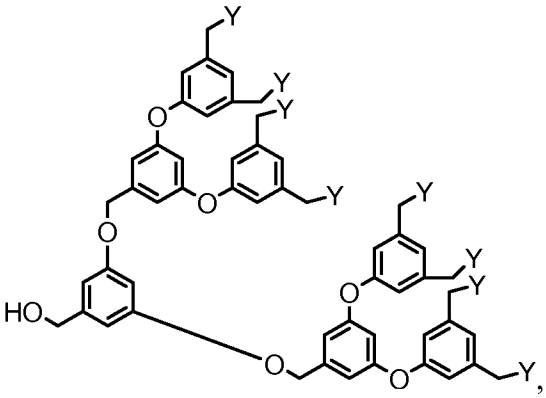
,


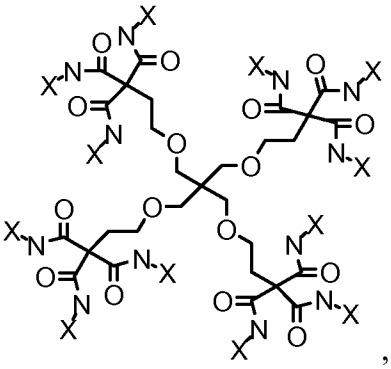
,


,


,


,


,


, or


,

wherein, independently for each occurrence,

R is an electron pair, H, alkyl, aryl, heteroaryl, aralkyl, heteroaralkyl, an alkali metal, or CH_2Y;

R' is H, a sugar radical, or CH_2Y;

n is an integer from 1 to 100, inclusive;

a is 1, 2, or 3;

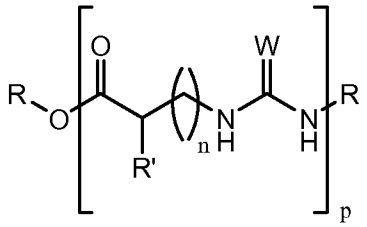
X is $C(CH_2Y)_3$; and

Y is a protein binding group,

wherein at least one Y is present in all compounds.

42. (Original) The compound of claim 41, wherein Y is a guanidinium ion.

43. (Original) A polymer of formula **II**, **III**, **IV**, **V**, **VI**, **VII**, **VIII**, or **IX**:



II

wherein, independently for each occurrence:

R is an electron pair, H, alkyl, aryl, heteroaryl, aralkyl, heteroaralkyl, or an alkali metal;

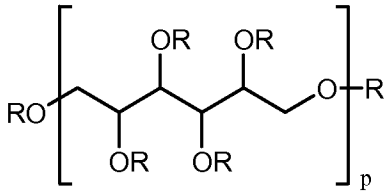
R' is H, alkyl, aryl, heteroaryl, aralkyl, heteroaralkyl, or $(R'')_3N$;

R" is an electron pair, H, alkyl, aryl, heteroaryl, aralkyl, or heteroaralkyl;

W is O, $NH_2^+(halogen)^-$, or S;

n is 1, 2, or 4-100; and

p is an integer from 2 to 1000 inclusive;



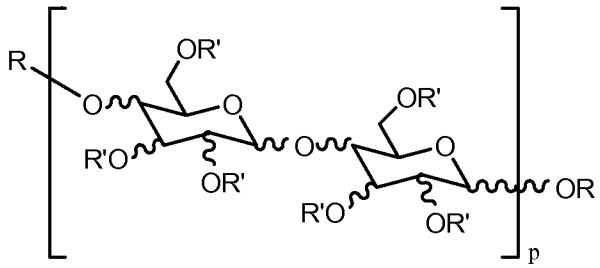
III

wherein, independently for each occurrence,

R is H, alkyl, aryl, heteroaryl, aralkyl, heteroaralkyl, or an alkali metal, or CH_2Y;

p is an integer from 2 to 1000 inclusive; and

Y is a PBG, wherein at least one Y is present;



IV

wherein, independently for each occurrence:

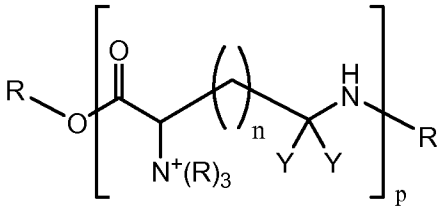
R is H, alkyl, aryl, heteroaryl, aralkyl, heteroaralkyl, or an alkali metal, or CH_2Y;

R' is H, alkyl, aryl, heteroaryl, aralkyl, heteroaralkyl, or $(R'')_3N$;

R" is an electron pair, H, alkyl, aryl, heteroaryl, aralkyl, or heteroaralkyl;

p is an integer from 2 to 1000 inclusive; and

Y is a PBG, wherein at least one Y is present;



V

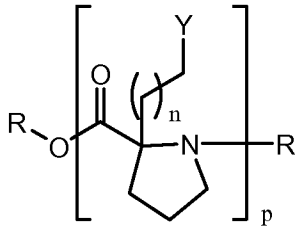
wherein, independently for each occurrence:

R is H, alkyl, aryl, heteroaryl, aralkyl, heteroaralkyl, or an alkali metal, or CH_2Y;

n is an integer from 1 to 100 inclusive;

p is an integer from 2 to 1000 inclusive; and

Y is a PBG;



VI

wherein, independently for each occurrence,

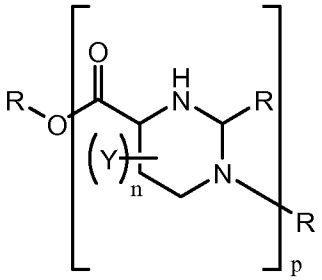
R is H, alkyl, aryl, heteroaryl, aralkyl, heteroaralkyl, an alkali metal, or CH_2Y;

n is an integer from 1 to 100, inclusive;

a is 1, 2, or 3;

Y is a PBG; and

p is an integer from 2 to 1000, inclusive;



VII

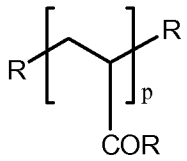
wherein, independently for each occurrence,

R is H, alkyl, aryl, heteroaryl, aralkyl, heteroaralkyl, an alkali metal, or CH_2Y;

n is an integer from 1 to 6, inclusive;

Y is a PBG; and

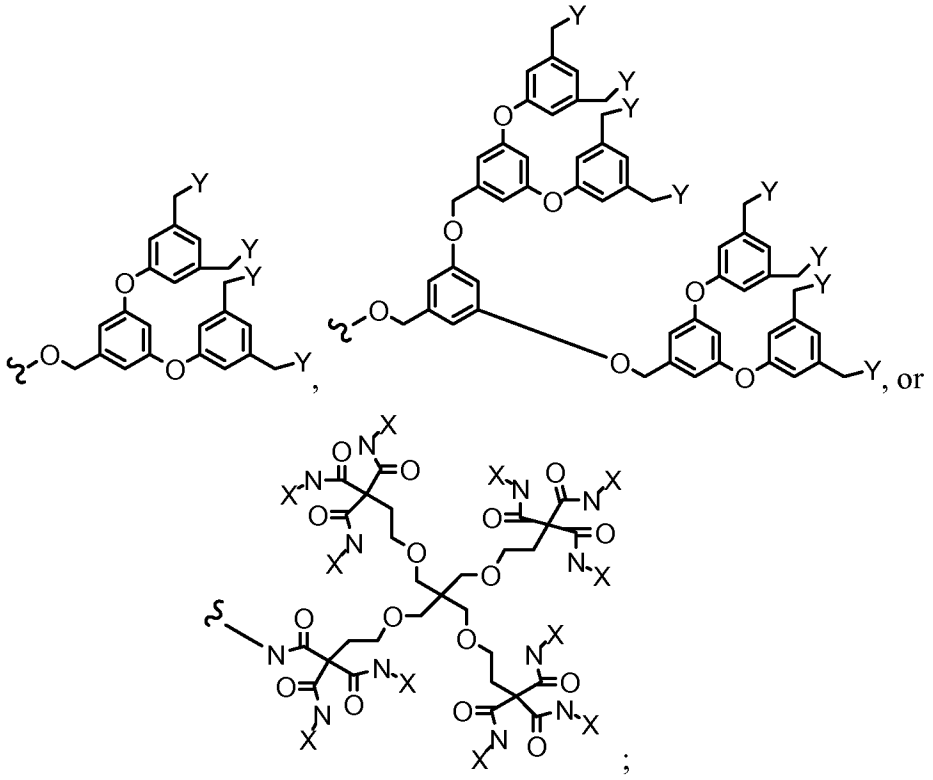
p is an integer from 2 to 1000, inclusive; or



VIII

wherein, independently for each occurrence,

R is H, OH, alkyl, alkoxy, aryl, heteroaryl, aralkyl, heteroaralkyl, -O-alkali metal, CH_2Y, OCH_2Y, or has a structure selected from the following:

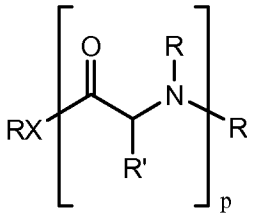


a is 1, 2, or 3;

X is $C(CH_2Y)_3$;

Y is a PBG, wherein at least one Y is present; and

p is an integer from 2 to 1000, inclusive; or



IX

wherein, individually for each occurrence:

R is an electron pair, H, alkyl, aryl, heteroaryl, aralkyl, heteroaralkyl, or an alkali metal;

R' is a sidechain of an alpha-amino acid, wherein at least one instance of R' is the sidechain of arginine;

X is O or NR; and

p is an integer from 2 to 1000, inclusive.

44. (Original) A method of screening compounds or polymers for the property of inhibiting protein aggregation in solution, comprising:

a) computing a set of parameters utilizing molecular modeling based on compounds or polymers known to have the property of inhibiting protein aggregation;

b) applying those parameters to other compounds or polymers; and

c) choosing the compounds or polymers that meet the criteria of those parameters.

45. (Original) A method of preparing a compound or polymers having the property of protein aggregation inhibition in solution, comprising:

a) computing a set of parameters utilizing molecular modeling based on compounds or polymers known to have the property of inhibiting protein aggregation;

b) designing a compound or polymer having the property of protein aggregation inhibition in solution based on those parameters; and

c) synthesizing the compound or polymer having the property of protein aggregation inhibition in solution.

46. (Original) A method of classifying a compound or polymer as either inhibitory of protein aggregation in solution or not inhibitory of protein aggregation in solution, comprising:

a) computing a set of parameters utilizing molecular modeling based on compounds or polymers known to have the property of inhibiting protein aggregation;

b) applying those parameters to a compound or polymer; and

c) classifying the compound or polymer that meet the criteria of those parameters as inhibitory of protein aggregation in solution.

47. (Original) A method of determining the preferential binding coefficient, Γ_{XP}, of an additive in a protein solution, comprising:

a) determining the phase space trajectories of the protein, solvent, and additive using molecular dynamics;

b) calculating the distance, r, between the center of mass for both the solvent molecule and additive molecule to the protein's van der Waals surface;

c) determining the minimum distance, r*, at which no significant differences between the local (r = r*) and bulk density are observed;

d) determining which molecules lie within the distance, r*, from the protein surface and classifying these molecules as the local domain;

e) determining which molecules lie outside the distance, r*, from the protein surface and classifying these molecules as the bulk domain;

f) determining the instantaneous preferential binding coefficient, $\Gamma_{XP}(t)$, using the following formula:

$\Gamma_{XP}(t) = n^{II}_X - n^{I}_X (n^{II}_W / n^{I}_W)$

wherein:

n^{II}_X = the number of additive molecules in the bulk domain;

n^{I}_X = the number of additive molecules in the local domain;

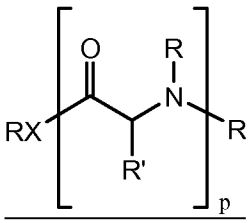
n^{II}_W = the number of solvent molecules in the bulk domain; and

n^{I}_W = the number of solvent molecules in the local domain; and

g) calculating the preferential binding coefficient, Γ_{XP}, as the time average of each of the values in step f) using the following formula:

$$\Gamma_{XP} = \frac{1}{t}\int_0^t \Gamma_{XP}(t')dt'.$$

48. (Currently amended) A method of suppressing or preventing aggregation of a protein in solution, comprising the step of combining in a solution ~~the compound or~~ (i) a polymer of formula IX ~~any of claims 1 to 43~~



IX

wherein, individually for each occurrence:

R is an electron pair, H, alkyl, aryl, heteroaryl, aralkyl, heteroaralkyl, or an alkali metal;

R' is a sidechain of an alpha-amino acid, wherein at least one instance of R' is the sidechain of arginine;

X is O or NR; and

p is an integer from 2 to 1000, inclusive; and

(ii) a protein.

49. (Original) The method of claim 48, wherein the protein is a recombinant protein.

50. (Original) The method of claim 48, wherein the protein is a recombinant antibody.

51. (Original) The method of claim 48, wherein the protein is a recombinant human antibody.

52. (Original) The method of claim 48, wherein the protein is a recombinant human protein.

53. (Original) The method of claim 48, wherein the protein is recombinant human insulin, recombinant human erythropoietin or a recombinant human interferon.

54. (Original) The method of claim 48, wherein the solution is an aqueous solution.

55. (Original) The method of claim 48, wherein the protein is a recombinant protein; and the solution is an aqueous solution.

56. (Original) The method of claim 48, wherein the protein is a recombinant human protein; and the solution is an aqueous solution.

57. (Original) A method of decreasing the toxicological risk associated with administering a protein to a mammal in need thereof, comprising the steps of adding to a first solution of a protein a compound or polymer of any of claims 1 to 43 to give a second solution; and administering to a mammal in need thereof a therapeutic amount of said second solution.

58. (Original) The method of claim 57, wherein the protein is a recombinant protein.

59. (Original) The method of claim 57, wherein the protein is a recombinant antibody.

60. (Original) The method of claim 57, wherein the protein is a recombinant human antibody.

61. (Original) The method of claim 57, wherein the protein is a recombinant mammalian protein.

62. (Original) The method of claim 57, wherein the protein is a recombinant human protein.

63. (Original) The method of claim 57, wherein the protein is recombinant human insulin, recombinant human erythropoietin or a recombinant human interferon.

64. (Original) The method of claim 57, wherein the first solution and the second solution are aqueous solutions.

65. (Original) The method of claim 57, wherein the protein is a recombinant protein; and the first solution and the second solution are aqueous solutions.

66. (Original) The method of claim 57, wherein the protein is a recombinant human antibody; and the first solution and the second solution are aqueous solutions.

67. (Original) The method of claim 57, wherein the protein is a recombinant human protein; and the first solution and the second solution are aqueous solutions.

68. (Original) A method of facilitating native folding of a recombinant protein in solution, comprising the step of combining in a solution a compound or polymer of any of claims 1 to 43 and a recombinant protein.

69. (Original) The method of claim 68, wherein the recombinant protein is a recombinant antibody.

70. (Original) The method of claim 68, wherein the recombinant protein is a recombinant human antibody.

71. (Original) The method of claim 68, wherein the recombinant protein is a recombinant mammalian protein.

72. (Original) The method of claim 68, wherein the recombinant protein is a recombinant human protein.

73. (Original) The method of claim 68, wherein the recombinant protein is recombinant human insulin, recombinant human erythropoietin or a recombinant human interferon.

74. (Original) The method of claim 68, wherein the solution is an aqueous solution.

75. (Original) The method of claim 68, wherein the recombinant protein is a recombinant human antibody; and the solution is an aqueous solution.

76. (Original) The method of claim 68, wherein the recombinant protein is a recombinant human protein; and the solution is an aqueous solution.